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ENTOMOLOGY.

The Robertson Cyanide Bottle.—Many entomologists have experienced more or less trouble in using the commonly recommended plaster-of-Paris cyanide bottle on account of the moisture that accumulates on the inside. I was recently shown by Professor Chas. Robertson, of Illinois, a plan he has adopted which is simple, practical, and causes no trouble of this kind. He uses wide-mouthed bottles with cork stoppers. He cuts out of the lower side of the cork a hole large enough to receive a small pill box. The pill box is filled with cyanide; a dozen pin holes are made through its bottom; and then it is inserted in the hole in the cork. The fumes pass through the pin holes into the bottle. Such a bottle can be easily washed out, and has many advantages especially for flies, bees and similar insects.—C. M. W.

Entomological Notes.—Professor A. J. Cook, of Michigan, spent the winter in Southern California. * * * Professor J. H. Comstock of Cornell University has been at the Leland Stanford Junior University during the winter, lecturing on entomology. * * * Professor Chas. Robertson, of Illinois, is studying the relations of flowers and insects in Florida. * * * Professor J. B. Smith, of Rutgers College, recently visited Europe to study types of Noctuidæ.. * * * Miss Mary E. Murtfeldt has contributed to the December *Insect Life* an interesting note on the "Hominivorous Habits of the Screw Worm in St. Louis." * * * Mr. Albert Koebele, of the U. S. Department of Agriculture has gone to Australia for more beneficial insects.

Professor Forbes' Sixth Report.—The seventeenth report of the State Entomologist of Illinois for the years 1889 and 1890 has lately been issued. Like its recent predecessors it gives evidence of the careful, exhaustive work so characteristic of Professor Forbes' investigations. The report proper covers about 100 pages with an appendix of 40 pages. In the general record for the two years covered it is stated that the previous prediction concerning the disappearance of the chinch bug outbreak had proven correct. Two species of aphides (*Siphonophora granaria* and *Toxoptera graminum*) had appeared in the grain fields; the former having "inflicted the worst injury upon agriculture ever done in Illinois by any plant-louse species." The general discussions include the following titles: "The

Fruit Bark Beetle" (*Scolytus rugulosus*), the best article concerning this insect yet published; "Experiments With the Arsenical Poisons for the Plum and Peach Curculio," showing the susceptibility of the beetles to poisoning; "The American Plum Borer" (*Euzophera semifuneralis*) with description of stages and notes on life history; "On the Common White Grubs," an important contribution on a little-known subject; "Additional Notes on the Hessian Fly," showing the life-cycle of this pernicious pest; "A Summary History of the Corn Root Aphis," "On a Bacterial Disease of the Larger Corn Root Worm" and "Notes on the Diseases of the Chinch Bug." The appendix consists of "An Analytical List of the Entomological Writings of Wm. Le Baron, M. D., Second State Entomologist of Illinois," and is accompanied by a well executed plate portrait of Dr. Le Baron. The report is also illustrated by three colored and four plain plates of original drawings by Mr. A. M. Westergren. The colored plates represent the corn leaf louse, corn root louse, and the grain louse, in a most accurate and artistic manner.—C. M. W.

The Illinois Insectarium.—In his recent Sixth Report, noticed above, Professor S. A. Forbes gives the following account of the Insectarium recently provided for the State Entomologist of Illinois: "The experimental work of the office has been greatly facilitated, and rendered far more accurate and profitable by the new Insectarium, or experimental entomological laboratory, provided for by the Legislature at its last session. It has been in constant and extensive use from the date when it was ready for occupancy.

"The important part of this Insectarium is essentially a conservatory fifteen feet by thirty, standing entirely above ground with glass roof and brick walls, with the exception of the end wall which is glass above the level of the sides. The building stands north and south, opening to the south with double doors, one of glass and one of wire gauze. The roof is covered with four rows of sash all hinged at the ends in such a way that the sash of the lower row can be lifted at the lower end, while the sash of the upper row may be opened widely at the peak of the roof. The glass on the lower row of sash upon each side is deadened with white paint (that of the upper row being left clear) and the admission of sunlight is further controlled by a screen of cheesecloth sliding on wires extending along the entire middle of the room beneath the two central rows of sash. The upper sashes are opened and closed by a ventilating apparatus which moves all together, while the lower are conveniently raised by hand. The room is divided into two apartments connected with double doors, one of which is provided with hot water pipes.

"With these arrangements it was easy to keep the temperature within one or two degrees, above or below, that of the outer air, whatever the weather might be. The interior is furnished with tables in benches, work-tables, etc., for breeding-cage and root-cage work, and contains a brick-lined trench, three feet wide and fifteen feet long by three feet deep, cemented within, and filled with earth, for the larger plants, and for small plot experiments."

MICROSCOPY.[1]

Notes on Celloidin Technique.—The high value of celloidin as an imbedding mass is well-known, and its superiority over all methods requiring heat is unquestioned, yet, from the fact that its manipulation has been attended by many difficulties, it has not come into general use. During the past two years I have tried the methods recommended by various authors and have found none entirely satisfactory, especially where very long series were necessary. The results of my experience are embodied in the following method:

The prepared plates or fragments are placed in an air-tight chamber; a four-ounce salt-mouth bottle being very suitable for this purpose. Pour into this bottle just enough ether-alcohol (equal parts acid-free sulphuric ether and absolute alcohol) to cover the fragments. The ether-alcohol should be added until after occasional shaking no celloidin remains undissolved; this may take several days. It should finally possess the consistency of a very thick oil. The solution thus obtained may be labelled No. 4. No. 3 is obtained by taking two volumes of No. 4 and diluting with one volume of ether-alcohol. No. 2 by proceeding in a like manner with No. 3. No. 1 is a mixture of absolute alcohol and sulphuric ether in equal parts.

The saturation and final imbedding is accomplished thus: The object is transferred from 95% alcohol to solutions 1, 2, 3, 4 successively, in each of which it remains from a few hours to days, depending upon the size and permeability. For pieces of tissue 2 mm. in diameter twenty-four hours in each will generally suffice. For a large brain, *e. g.* that of a cat, a week in each will not be too long.

In imbedding, unless orientation is desired, the ordinary paper box is best. A thin plate of lead is placed in the bottom and the imbed-

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[1] Edited by C. O. Whitman, Clark University, Worcester, Mass.